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1. INTRODUCTION

Two types of informal self-help financial groups are common in low-income countries--sometime intertwined: those that accumulate funds (ASCAS) which are used for various purposes--including lending--and those that collect and then systematically distribute funds in rotation (ROSCAS) to each group member (Bouman 1994). Of the two, ROSCAS are the most interesting: they are found in many low-income countries and researchers report that many people and large amounts of funds are involved in them (e.g., Adams and Canavesi 1992). Because most studies of ROSCAS have been snapshots there are few insights in the literature on the evolution of these groups. Some observers have argued that ROSCAS are rudimentary institutions that wither as more sophisticated forms of financial intermediation emerge (e.g., Geertz 1962). Other observers have documented the metamorphose of ROSCAS into formal financial institutions (e.g., Izumida 1992). In the discussion that follows we suggest still another evolutionary path. We describe a ROSCA in Cameroon that uses bids to determine the rotation of funds among group members and go on to suggest that some self-help financial groups may adapt to new economic opportunities by becoming more sophisticated, yet still remain informal.

2. STRENGTHS AND WEAKNESSES OF ROSCAS

In their most elementary form ROSCAs are comprised of a group of individuals who each make periodic contributions to a pot that is then given to one member in rotation (Ardener 1964). Each participant typically contributes the same amount of money and the rotation of the pot is determined by lot. After all members receive a pot, the group may disband, may be reformed with some members exiting and new members entering, or the same group may simply recycle. Typically membership is restricted to individuals who work for the same business, or who are relatives, friends, or neighbors.

ROSCAs are similar to banks since both do financial intermediation. In a ROSCA where rotation is determined by lot, the first person receiving the pot obtains an interest-free loan from other members of the group and then repays the loan in equal installments through contributions in subsequent rotations until the loan is entirely repaid in the last rotation. The final person in the rotation is a pure saver who receives back their deposits: the total amount they lent to others during the cycle of the ROSCA. Members between those who receive the first and last rotation switch from being depositors to being borrowers when they receive their pots. The half of the members who receive pots early in the rotation are net borrowers, while the other half are net savers in the ROSCA.

A variety of reasons explain the popularity of these groups. They impose few transaction costs on members, they build mutual trust, they provide insurance or reciprocity that can be called upon in times of emergency, they allow members to access relatively large amounts of funds that may otherwise be difficult to assemble, they provide a desirable form of compulsory savings, and they allow all members--except the last recipient--to marshall a predetermined amount of money more quickly than is possible through autonomous savings.

From the standpoint of ideal financial intermediation, rudimentary ROSCAS have at least four limitations, however. First, because of their small size and reliance on personal relationships they are unable to intermediate among individuals who are separated by substantial distance. Since the economic conditions of group members are often similar their capacity to save and their demand for loans likewise tend to be similar and move up and down together, thus lessening the opportunities for gains from financial intermediation that might occur over a larger geographic space among individuals whose financial requirements were more heterogeneous.

Second, because of their relatively small size, ROSCAS are unable to provide large and long-term loans. These types of loans are easier for the formal financial system to offer.

Third, because members must wait their turn to obtain the pot, ROSCAS provide discontinuous access to funds; an elementary ROSCA only provides a loan to a member once in the group's cycle. A ROSCA is thus less able to satisfy emergency needs than is, say, a credit card or a line-of-credit that allows a series of multiple loans on demand.

Fourth, funds are efficiently allocated if they go to the individual who has the highest expect marginal returns from the use of additional liquidity. Because an elementary ROSCA typically determines the allocation of pots by lot there may be a mismatch between who receives the pot in a given rotation and who has an investment opportunity with the highest expected rate of return. For example, the individual who draws last in the rotation may have an investment alternative with expected returns that are much higher than the person who wins the first pot. In some cases this high-return opportunity may disappear before the last rotation of the ROSCAS. In other cases, the receiver of an early pot may encounter several high-return investment alternatives subsequently that they are unable to capitalize on because the ROSCA only provides each member one discontinuous shot of liquidity.

3. ROSCA INNOVATIONS

Various innovations have allowed members to overcome some of the limitations in elementary ROSCAS. The size limitation of ROSCAS turns out to be the most difficult weakness to overcome. If the size of the group is sharply expanded and more diverse individuals are included, group solidarity deteriorates and the ROSCA is less able to screen members for creditworthiness and to employ informal sanctions that assure compliance with group norms. At least in Ghana, relatively large ROSCAS, however, are managed by commission agents--susu collectors--who regularly collect and distribute funds without members of the group necessarily knowing each other (Steel and Aryeetey 1994). In some cases collectors also provide emergency loans to members. The main problem with this system is assuring collectors' honesty, something that might be enhanced by a bonding service.

ROSCAS have some latitude to grow in membership size and in volume of funds handled and thereby provide larger loans and longer-term loans to group members. This may occur as the incomes of members increase and as the group or the organizer is able to screen additional individuals for membership. For example, sophisticated merchants have used ROSCAS in Brazil, Chile, Mexico, and Bolivia to sell cars, furniture, other consumer durables, and real estate using relatively long-term loans. Large and long-term ROSACS have also been common in India (Nayar 1973).

A variety of innovations are also used to lessen the discontinuous-liquidity problem in ROSCAS and to deal with emergencies. In some cases members split shares so that two or more people divide a single pot. This may involve two members dividing the first and the last pot in the rotation to allow access to additional liquidity twice for each individual instead of just once in each cycle of the ROSCA. Also, where membership in the ROSCA is stable, the order of the rotation may be adjusted in subsequent cycles so that individuals who receive their pots early in one cycle receive a pot late in the next cycle. An even more common practice is to append an ASCA to a ROSCA to provide emergency loans to ROSCA members out of the funds accumulated in the ASCA (Hospes 1992).

Several measures are also commonly used to allocate funds more efficiently than might otherwise occur from simply distributing pots by lot. One method is to allow the leader to distribute the pot on the basis of perceived need after lobbying by the members who have not yet received a pot. The main danger in using this procedure is that some members may feel unfairly treated and thereby undermine the solidarity of the group. There are fewer problems if a member is able to renegotiate their position informally with other accommodating members.

A still more efficient method of determining the rotation of ROSCA distributions is the use of bids, a technique commonly used in East Asia. The bid may take the form of either a discount or a premium. A discount results in non-winning members paying less than their normal share to the winner of the bid, the member who bids the largest discount being the winner of the pot auctioned. The premium system involves the winner of the bid paying more than the normal share later to other members of the group for the right to receive the pot. The most attractive feature of the auction is that members of the group who have not received a distribution are able to express the intensity of their interest in obtaining the pot through bids, thus allocating funds to the member who is most likely to realize the largest benefit from the use of additional funds.

One question that has not been adequately answered in the literature is why do some ROSCAS employ these sophisticated bidding methods to allocate funds while others do not? In the following discussion we argue that the more efficient allocation of funds that results from bidding may be prompted by economic growth that substantially increases the dispersion of expected economic returns from additional investments among members of a ROSCA, thus enhancing the economic returns to institutional innovations.

3. ROSCAS IN CAMEROON

There are probably more publications about ROSCAS in Cameroon than there are on this topic for any other African country (see list of references). These studies show that ROSCAS exist in all ten Provinces and are called tontines among French speakers and djanggi in many other parts of the country. They are particularly popular among the Bamileke--the ethnic group of the West Province (Soen and Comarmond 1972)--and among inhabitants in the two anglophone Provinces: Northwest and Southwest (Harteveld 1972). Studies also show a variety of forms that range from the most elementary, through groups that combine ROSCAS and ASCAS, to groups that have evolved into formal banks (Haggblade 1978). Schrieder and Cuevas estimate that nearly 80 percent of the adults in Cameroon participate in self-help financial groups (ASCAS or ROSCAS), that these groups handle about one-quarter of the total volume of money lent in the country, and that they manage about one-half of total financial savings nationwide.

4. A SOPHISTICATED SELF-HELP FINANCE GROUP IN CAMEROON

Although not common, an increasing number of urban ROSCAS in Cameroon use bids to determine the rotation of the pot. No systematic study has been done of their relative importance, but a case study of one of these sophisticated groups may clarifying their operations and also provide clues on their genesis.

In the early 1980s four individuals who were Bamilekes living in Yaounde, all from Foto Village located in West Province, formed a self-help financial group with the name of "Amical des Ressortisants Foto" (AMIRFO). Gradually other individuals from Foto Village who were working in Yaounde were added to the group until the total number of members reached about 40, all men. Most of the members were government employees, private sector workers, or businessmen. The criteria for membership included that the person was from Foto Village, that they lived in Yaounde, that they had a steady source of income, and that they be in the middle- or upper-income strata. New members were only admitted if sponsored by two current members.

From the start the group had social as well as economic objectives. Monthly meetings were generally organized around a dinner and professional networking. An additional objective was to help members to advance economically. The agenda also included collecting money ad hoc for community improvement projects in their home village, such as building a bridge, repairing the roof of the school, and improving the drinking water system. Initially, the group managed just one fund, a

ROSCA. As membership grew two other ASCA funds were added: first a social fund and then later a loan fund that made short-term loans.

The social fund provided modest life and health insurance to members. For instance, if a member of the group died the widow received the equivalent of about US$2,400 (1$=250CFA) from the fund; in case of hospitalization for more than 3 days, the member also received about US$10; beyond three days the assistance was limited to about US$20 per week. Each member of the group was obligated to contribute about US$144 to the social fund on joining the group. The social fund was recapitalized at the end of each year by requiring members to pay additional quotas. The group's objective was to hold an average of about US$5,000 in the fund. During the 1980s the payout each year averaged about 30 to 40 percent of this amount. Occasionally, some of the idle money in the social fund was lent to members for short periods. Unused funds were deposited in a bank.

Another loan fund was used to meet emergency needs of the members. The interest rate charged on loans from this fund was 3 percent per month with a repayment period of 3 months. After three months, the interest on the unpaid balance was raised to 5 percent monthly for the next three months, then to 10 percent monthly until the loan was repaid. All loans from the fund were to be repaid by the end of November each year. On average, about half the members of the group participated in this fund and each contributed about US$600 each to it yearly. Only members who had contributed to the fund, however, were eligible to borrow from it. At the end of the year members who contributed to the fund were allowed to borrow all or part of their contribution to the fund without interest for one month. This practice was introduced to allow members of the association to satisfy their financial obligations during December. The earnings from the fund were distributed to fund contributors each year in proportion to their initial contributions to the fund.

5. OPERATIONS OF THE ROSCA

The third fund started as an elementary ROSCAS that evolved with the growth in membership. Participation in the ROSCA was not mandatory, but more than 90 percent of individuals in AMIRFO usually joined. Initially, ROSCA participants met monthly, collected a fixed amount from each member and then immediately gave the pot to one member in rotation based on a lottery. As the group grew and membership became more heterogeneous this elementary form of ROSCA was unable to meet the increasingly complex financial requirements of individuals in the group. Some members wished to save more per month than the prescribed share, while others were able to save less than the normal share. As the number of members grew, it was no longer possible to complete the rotation in 12 months, something that was desirable because of holiday commitments during December. Some members of the group also objected to using a lottery--luck--to allocate the pot, and instead argued it should be distributed on the basis of need, thereby threatening group cohesion.

Because elementary procedures did not satisfy some of the financial needs of members, AMIRFO designed more sophisticated mechanisms that tailored each member's share in the ROSCA to their individual savings capacity and allowed access to a pot any time during the cycle through competitive biding. Multiple winners of the pot were allowed to overcome the lumpiness-of-liquidity-access problem and to force the cycle to terminate within 12 months regardless of the number of participants. These innovations were induced by changes in the economic capacities of members, by changes in economic opportunities in general, and by the challenges of operating a larger self-help financial group.

Initially, the members of AMIRFO considered meeting diverse savings requirements by managing three elementary ROSCAS: one with large-sized shares, a second with medium-sized shares, and a third with small-sized shares. This was rejected because it might undermine group cohesion and leave unsolved the problem of how the pots were allocated. The innovation eventually selected was to continue with one ROSCA, employ bids to allocate pots, and to institute a standard savings unit. The standard minimum savings unit was defined as the equivalent of about US$200 each month, with each member being able to subscribe to fractional or multiple standard shares. For example, a members could subscribe to a half share and contribute just $100 per month, or subscribe to five shares and contribute $1,000 per month to the pot. Members could adjust the amount they wished to save in AMIRFO at the start of each new cycle. Members who wished to receive portions of several pots could also subscribe to say two savings shares, withdraw the projected savings from one share early in the rotation, and then withdraw the projected savings on the other share in a later rotation. These adjustments reinforced group solidarity, better tailored the savings services to the diverse savings capacities of the members, allowed allocation of the pots in ways that did not undermine group cohesion, allowed members more access to liquidity, and also resulted in more efficient allocation of funds among participants.

A hypothetical example using only a four-member group that operates over just a 4 month cycle illustrates the procedures used in the larger and more complex AMIRFO ROSCA. Before starting the cycle, the group sets the standard saving unit for each member at the equivalent of US$200. One member (A), however, is unable to save this much each month and opts to contribute a half share of US$100. Another member (B) wishes to save more than the standard share and opts to contribute two shares, or a total of US$400 each month. With the monthly contributions of C and D of $200 each, the pot amounts to $900 each month ($100 + $400 + $200 + $200). Before the cycle begins the group also decides on a minimum discount bid of $10 per savings unit that will be permitted in determining who gets each pot.

A month later the group meets, assembles its pot of $900, and receives discount bids from members who are interested in borrowing an amount from the pot equal to the total amount of money they are scheduled to contribute during the next four months. Member A is scheduled to save a total of $400, B a total of $1600, and C and D a total of $800 each over the planned cycle of the ROSCA. Since the first pot is just $900, only members A, C, and D submit discount bids the first rotation; the first pot is not large enough to match the projected contributions of member B so he sits out the bidding, waiting for a later round. If in this rotation member A submits the largest discount bid per saving share and it is $80, then A would receive his projected savings of $400 less his discount bid of $40 ($80 x .5) for a net of $360 from the pot. The remaining amount ($540) would be carried forward and added to the pot in the second rotation ($900) for a total of $1,440.

Only members C and D could bid in the second round; there is still not enough money in the pot to cover all of B's projected savings, and A would be ineligible to bid since he has already withdrawn his projected savings, less the discount paid for receiving an early pot. If D submitted the highest discount bid in the second rotation and it was $60, then D would receive from the pot his projected savings of $800 less the $60 discount, for a total of $740. The remaining $700 would be carried forward and added to the $900 pot of the third round, for a total of $1,600.

In round three B and C could bid. If B submitted the highest bid of $50 then he would receive his projected savings of $1,600 less $100 ($50 x 2) from the pot ($1,500) with $100 being carried forward and added to the last pot--that would then be worth $1,000.

By default C would win the last pot for the minimum discount bid of $10. He would, therefore, receive his total savings of $800 less the $10 discount for a total of $790. The remaining $210 in the pot would then be distributed back to the members on a pro rata basis, depending on how many savings units the members paid: A = one-half, B = 2, and C and D = 1 each for a total of 4.5 units. Given this formula, A would receive a rebate of $23.33, B a rebate of $93.33, and C and D would each receive a refund of $46.67.

In this example, after rebate, member A who drew the first pot would pay an annualized interest of about 14 percent on his loan while C who drew last would receive an annualized return on his deposits of about 18 percent. Members B and D would each pay a small amount for their short-term loans. One might expect the spread to increase between the effective rate of interest paid by net borrowers and received by net savers as the size of the group is increased and when the ROSCA operates over a longer time period than is described here.

The actual operation of the AMIRFO ROSCA was more complex than is depicted in this simple example. In most cases three or four members received portions of the pot in each rotation. The cycle of the group also usually finished before the prescribed 12 months because gains from discount bids allowed the carryforward of sufficient funds to allow paying off all projected savings early, sometimes in as little as 10 months. It was also common for members to decide to use their rebates from the ROSCAS to meet their annual funding obligations in the other two ASCAS operated by AMIRFO.

6. CONCLUSIONS

It should not be surprising to find individuals remodelling social-economic institutions such as ROSCAs to fit changing conditions. The AMIRFO example is a case where both the loan and deposit side of informal financial intermediation were retailored to satisfy the evolving financial demands of its members. On the savings side, making the amount that could be deposited each rotation flexible provided the growing group a variety of deposit options, thus accommodating members who wished to deposit both large and small amounts. On the loan side, similar size-flexibility was provided along with innovations that allowed individual members to have more flexibility over when they could access additional liquidity.

The AMIRFO example also illustrates several important features of developing countries that are often ignored by government officials and donor employees as they attempt to prod development with credit. Even in a relatively homogeneous group such as the men who participated in AMIRFO, there is a wide dispersion in their demand for financial services at any given time. On a given date some members of the group were willing to pay quite high rates of interest to obtain a loan quickly that they could use to capitalise on a transitory business opportunity or household requirement. At the same time, many other members were content to deposit their funds and receive attractive rates of return on their savings, possibly because they lacked high-return investment alternatives at the time. All individuals in the groups also benefited from the variety of explicit and implicit forms of insurance that were involved in membership: the explicit life-and-health facilities, the opportunity to have access to several credit facilities that could be called on in times of emergency, and the reciprocity and mutual trust engendered by being a member of a group--ultimately the most dependable form of insurance in all societies. This diversity of financial requirements is typically not well served by inflexible targeted credit programs that ignore deposit mobilization and insurance.

Flaws in formal financial systems are a major reason for the emergence of sophisticated ROSCAS, such as those found in Cameroon. A similar evolution of ROSCAS in other African countries might be expected as economic conditions improve, especially where formal financial systems continue to perform poorly.

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